a camera identifier operable to identify the cameras having a viewing direction within a predetermined angle of the user-selected viewing direction as identified cameras;

a camera characteristic comparer operable to compare at least one camera characteristic affecting the image data quality for each identified camera to determine differences therebetween;

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a camera selector operable to select one of the identified cameras as a selected camera in dependence upon the determined differences;

an object representation selector operable to select the representation of the object generated from the selected camera as a selected representation; and

a renderer operable to generate image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, in which texture data based on input image data from the selected camera is rendered onto the selected representation of the object.--

REMARKS

This application has been reviewed in light of the Office Action dated August 29, 2001. Claims 1-116, 118-129, 131-166, 168-179, 181-192, 195-204, 207-251 are presented for examination. Claims 117, 130, 167, 180, 193, 194, 205 and 206 have been canceled, without prejudice or disclaimer of the subject matter presented therein. Claims 42, 43, 55, 64-66, 100, 101, 131, 132, 164-166, 168, 169, 172, 173, 175-179, 181, 182, 185-192, 195, 196, 201-204, 207, 208, 210-213, 235, 236, 239 and 244-246 have been amended to define more clearly what Applicants regard as their invention. Claims 249-

251 have been added to provide Applicants with a more complete scope of protection. Claims 1, 21-23, 40, 41, 44, 54-56, 63, 64, 76, 84, 85, 99, 102, 116, 118, 129, 133, 149, 150, 163, 166, 177-179, 187, 188, 191, 201-203, 210, 211, 214, 223-226, 232-234 and 237-251 are in independent form. Favorable reconsideration is requested.

A Letter Transmitting Corrected Drawings is submitted herewith to make corrections to the drawings set out in the form PTO-948 attached to the Office Action.

Applicants note with appreciation the allowance of Claims 1-54, 56-63, 65-116, 118-129, 131-165, 237 and 240-243 and the indication that Claims 16, 167-169, 180, 196, 208, 216 and 217 would be allowable if rewritten so as not to depend from a rejected claim, and with no change in scope. Since the latter claims have been so rewritten, they are now believed to be in condition for allowance. have not been so rewritten because, for the reasons given below, their base claim is believed to be allowable.

The Office Action objected to the drawings based on the Draftsperson's objection to Figs. 3, 14 and 15, as set forth on form PTO-948.

First, cancellation of Claims 117, 130, 167, 180, 193, 194, 205 and 206 renders the rejections of those claims moot.

Claims 166, 170-173, 175, 177, 179, 183-187, 189-195, 197, 199, 201, 203-207, 209, 212, 213 and 244-246 were rejected under 35 U.S.C. § 103(a) as being obvious from U.S. Patent No. 6,025,847 to *Marks* in view of U.S. Patent No. 5,182,641 to *Diner et al.* and U.S. Patent No. 5,877,779 to *Goldberg et al.* Claims 174, 176, 198 and 200 were rejected under 35 U.S.C. § 103(a) as being obvious from *Marks* in view of *Diner et al.*, *Goldberg et al.*, and the Sharp Corporation's Model VC-5W20E Video Cassette Recorder ("the Sharp VCR"). Claims 178 and 188 were rejected under 35 U.S.C. § 103(a) as

obvious from *Marks* and *Diner et al.* Claims 202, 210 and 211 were rejected under 35 U.S.C. § 103(a) as being obvious from *Marks*, *Diner et al.*, and U.S. Patent No. 5,587,752 to *Petruchik*. Claims 214, 215, 218, 219, 221, 223-227, 230-236 and 247-248 were rejected under 35 U.S.C. § 103(a) as being obvious from *Marks*, *Diner et al.*, *Goldberg et al.* and *Petruchik*, and further in view of applicant's admitted prior art Haralick et al., Computer and Robot Vision Volume 2 ("Haralick"), and Wolberg, Digital Image Warping. Claims 220 and 222 were rejected under 35 U.S.C. § 103(a) as being obvious from *Marks*, *Diner et al.*, *Goldberg et al.*, *Petruchik*, Haralick et al., and Wolberg, and further in view of the Sharp VCR.

Claims 178 and 188 were rejected under 35 U.S.C. § 102(b) as being anticipated by *Diner et al.* Claims 55 and 239 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,911,035 to *Tsao*.

Rejection under 35 U.S.C 103(a)

Claim 191 is directed to a method of processing image data defining a plurality of sequences of images, each from a respective camera, of an object moving in a scene to produce signals that define a representation of the object in a three-dimensional computer model, and to generate image data in accordance with a user-selected viewing direction. Claim 191 recites: (a) receiving data to define a user-selected viewing direction, (b) calculating the angle between the user-selected viewing direction and the viewing direction of each camera, (c) identifying the cameras having a viewing direction within a predetermined angle of the user-selected viewing direction, (d) comparing at least one camera characteristic affecting image data quality for each identified camera, (e) selecting,

based upon the comparison, one of the identified cameras from which to process input image data to define a representation of the object in the three-dimensional computer model, (f) generating image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, and (g) input texture image data from the selected camera is rendered onto the representation of the object.

One important feature of processing image data according to Claim 191 is that the user can select one of the cameras with superior image data quality from which to render an image of a three-dimensional computer model.

Marks relates to a method of generating a 3D model from an image. The source image provided to the system is an image of a static scene showing the static physical object to be modeled. The static image is displayed to the user and the user then creates a 3D model of the room by creating wireframe primitives that approximate the shape, size and location of the objects in the picture (column 3, lines 3-6). Consequently, *Marks* does not teach or suggest the features of Claim 191 in the present application of processing image data defining a plurality of sequences of images, each from a respective camera, of an object moving in a scene.

Further, as the Office Action acknowledges in part 10, *Marks* does not disclose generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction or at least one camera characteristic affecting image data quality.

Diner et al. relates to a system whereby a plurality of television cameras are used to view a robot arm or a remotely operated vehicle controlled by an operator. The system provides the user with the ability the select one of the cameras for image display.

The Office Action, in part 21, cites *Diner et al.* as disclosing that the representation of an object rendered is determined in dependence upon the user-selected viewing direction, the respective viewing directions of cameras, and at least one camera characteristic affecting image data quality. To support this argument, the Examiner refers to column 1, lines 31-41 of *Diner et al.* In fact, column 1, lines 31-41 merely discuss the potential of multiple camera television systems to provide depth information.

Goldberg et al. relates to a method for rendering an object or scene from a preselected viewpoint onto a display whereby the object is represented by a texture map stored in memory of processor-based system, and the viewpoint is represented by geometric data stored in memory.

The Office Action argues, in part 24, that *Goldberg et al.* discloses "the selection of a representation of each object." The Examiner refers to column 1 and column 2 of *Goldberg et al.* Applicants maintain that *Goldberg et al.* is totally silent about there being a plurality of representations of each object in a three-dimensional computer model and is totally silent about the selection of one of these representations for rendering.

Applicants submit that nothing in *Marks*, *Diner et al.*, and *Goldberg et al.*, would teach or suggest a method, as recited in Claim 191, of: (a) receiving data to define a user-selected viewing direction, (b) calculating the angle between the user-selected viewing direction and the viewing direction of each camera, (c) identifying the cameras having a viewing direction within a predetermined angle of the user-selected viewing direction, (d) comparing at least one camera characteristic affecting image data quality for each identified camera, (e) selecting, based upon the comparison, one of the identified cameras from which to process input image data to define a representation of the object in

the three-dimensional computer model, (f) generating image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, and (g) input texture image data from the selected camera is rendered onto the representation of the object.

Accordingly, it is respectfully submitted that Claim 191 is patentable over *Marks*, *Diner et al.* and *Goldberg et al.*, taken individually or in combination. Claims 203 and 246 are apparatus claims similar to method Claim 191, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 191.

Claims 249, 250 and 251 recite features similar to those discussed above with respect to Claim 191 and therefore are also believed to be patentable over *Marks*, *Diner et al.* and *Goldberg et al.* for the reasons discussed above.

Claim 201 relates to an image processing method in which image data from each of a respective sequence of images, each from a different camera, is processed to define a representation of at least one object in a three-dimensional computer model. A representation of each object is selected for rendering an image according to a user-selected viewing direction, the viewing direction of each camera and a plurality of camera parameters related to image data quality. Claim 201 recites that the camera parameters are tested in a predetermined order, with the selection of a representation for rendering being based upon tests to identify a camera parameter that is sufficiently different for the cameras.

Applicants have found no teaching or suggestion in *Marks*, *Diner et al.* and *Goldberg et al.* of an image processing method in which a sequence of images, each from a

different camera, is processed to define a representation of at least one object in a three-dimensional computer model. A representation of each object is selected for rendering an image according to a user-selected viewing direction, the viewing direction of each camera and a plurality of camera parameters related to image data quality. Nor does *Marks*, *Diner et al.* and *Goldberg et al.* disclose that the camera parameters are tested in a predetermined order, with the selection of a representation for rendering being based upon tests to identify a camera parameter that is sufficiently different for the cameras.

Accordingly, it is respectfully submitted that Claim 201 is patentable over *Marks*, *Diner et al.* and *Goldberg et al.*, taken individually or in combination.

Petruchik relates to a method for producting a composite photographic image from an exposed photographic film and a selected prerecorded image chosen at the time of exposure of the photographic image (see column 3, lines 10-13).

The Office Action, at part 32, argues that *Petruchik* discloses the feature of selecting image data to be used to define an object from a plurality of images of the object each recorded by a specific camera. More specifically, *Petruchik* teaches that a composite two-dimensional image is produced from an exposed film frame and a pre-recorded image selected by a user. Applicants believe that *Petruchik* is totally silent about selecting image data from images recorded by a plurality of cameras, to be used to define an object in a three-dimensional computer model.

Accordingly, it is respectfully submitted that Claim 202 is patentable over *Marks*, *Diner et al.* and *Petruchik*, taken individually or in combination.

Claims 210 and 211 are apparatus claims which relate to similar subject matter as that of claims 191, 201, 203 and 246, discussed above.

Consequently, for the reasons set out above, we submit that Claims 202, 210 and 211 are allowable over the prior art.

Claims 214, 215, 218, 219, 221, 223-227, 230-236 and 247-248 were rejected under 35 U.S.C. § 103(a) as being obvious from *Marks*, *Diner et al.*, *Goldberg et al.* and *Petruchik*, and further in view of applicant's admitted prior art Haralick et al., Computer and Robot Vision Volume 2 ("Haralick"), and Wolberg, Digital Image Warping. Applicants believe that the prior art cited against has been shown in discussion above to not address the subject matter.

The total lack of relevance of Marks, Diner, Goldberg and Petruchik to the subject matter of independent claims 214, 223-226, 232-234, 247 and 248 is immediately apparent from our discussion of these documents above in relation to claims 191, 201-203, 210, 211 and 246, which concern similar subject matter.

The Examiner argues in parts 36-39 of the Office Action that the following features recited in, for example, independent claim 214 are obvious based on Haralick and Wolberg:

- testing whether first and second images of the object displayed from the generated image data will be discontinuous by testing whether the image data for the object in the second image in the sequence differs by more than a predetermined amount from predetermined image data; and

- if the image data for the object in the second image differs by more than a predetermined amount, generating modified image data for the object in the second image.

The Examiner's reasons for arguing that these features are obvious is that the applicant referred to Haralick and Wolberg in the specification describing these processing steps.

However, with respect, Haralick is referred to in the specification as a mere example of a technique which could be used to determine the similarity of two images.

Haralick discloses a number of applications for which the disclosed techniques of calculating a similarity measure between images may be useful (see, for example, Table 16.1 on page 294 of Haralick). However, Haralick is totally silent about using the techniques to test whether first and second images of an object generated by rendering texture data onto a three-dimensional computer model will be discontinuous.

Consequently, the fact that Haralick was cited by the applicant as a mere example of a technique which could be used to perform the recited processing operation does not in any way mean that Haralick renders the recited features obvious.

Similarly, the applicant cited Wolberg as a mere example of a document which discloses a processing technique which could be used to produce an image which will not appear discontinuous to the user.

Again, Wolberg does not disclose the application of the technique in the context recited in claim 214. Indeed, Wolberg discloses in the first paragraph of part 7.5.1 on page 222 that the processing technique may be applied to special effects, such as in the creation of a sequence of images showing the transformation of a goat to an ostrich to a turtle to a tiger to a women.

Consequently, it is again immediately clear that Wolberg does not disclose or make obvious any of the features recited in claim 214.

For the reasons set out above, therefore, it is submitted that independent Claims 214, 223-226, 232-234, 247 and 248 are allowable over the prior art.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

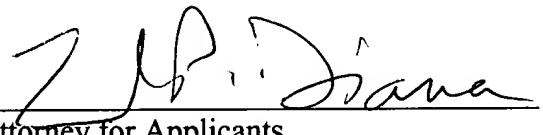
This Amendment After Final Rejection is believed clearly to place this application in condition for allowance and its entry is therefore believed proper under 37 C.F.R. § 1.116. At the very least, however, it is believed that the formal rejections have been overcome, and cancellation of Claims eliminates all issues relating to those claims. Accordingly, In any event, however, entry of this Amendment After Final Rejection, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, he she is respectfully requested to contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

Applicants respectfully request favorable consideration and early passage to issue of the present divisional application.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

42. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [1 to 22] 1, 21 and 22.

43. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [1 to 22] 1, 21 and 22.

55. (Amended) A method of generating a model of an object in a three-dimensional computer model, in which:

a transformation is applied to image data from a first camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to a surface to give first transformed image data;

a transformation is applied to image data from a second camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to the surface to give second transformed image data; [and]

the first transformed image data and the second transformed image data are compared to distinguish transformed image data relating to the object from transformed image data relating to its shadow; and

the object is modelled in dependence upon [part of] the transformed image data relating to the object.

64. (Amended) An apparatus for generating a model of an object in a three-dimensional computer model, comprising:

means for applying a transformation to image data from a first camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to a surface to give first transformed image data;

means for applying a transformation to image data from a second camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to the surface to give second transformed image data; [and]

means for comparing the first transformed image data and the second transformed image data to distinguish transformed image data relating to the object from transformed image data relating to its shadow; and

means for modelling the object in dependence upon [part of] the transformed image data relating to the object.

65. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [44 to 55] 44, 54 and 55.

66. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [44 to 55] 44, 54 and 55.

100. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [67 to 84] 67 and 84.

101. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [67 to 84] 67 and 84.

131. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [102 to 117] 102 and 116.

132. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [102 to 117] 102 and 116.

164. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to <u>become operable to</u> perform a method according to any of claims [133 to 149] <u>133 and 149</u>.

165. (Amended) A signal conveying instructions for causing a programmable processing apparatus to <u>become operable to</u> perform a method according to any of claims [133 to 149] <u>133 and 149</u>.

166. (Amended) A method of processing image data defining a sequence of images of at least one object moving in a scene to produce signals defining a representation of each object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the method comprising:

processing the image data to identify image data relating to respective objects in the scene;

defining a representation of each object in the three-dimensional computer model in dependence upon the identified image data;

generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction in which texture data based on the identified image data is rendered onto the object representations; and

generating [quality information for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] <u>reliability information</u>

indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

168. (Amended) A method according to claim [167] 166, wherein the information indicating the reliability is generated in dependence upon a linear relationship between reliability [quality] and the angular difference between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

169. (Amended) A method according to claim [167] 166, further comprising the step of generating information indicating how to change the viewing direction to improve the generated reliability.

172. (Amended) A method according to claim 166, wherein the [quality] reliability information is generated as pixel data within the generated image data.

173. (Amended) A method according to claims 166, further comprising the step of generating a signal conveying the image data and the [quality] reliability information.

175. (Amended) A method according to claim 166, further comprising the step of displaying an image using the generated image data and displaying the [quality] reliability information.

176. (Amended) A method according to claim 166, further comprising the step of making a recording of the image data and the [quality] reliability information either directly or indirectly.

177. (Amended) A method of rendering an image in accordance with a user-selected viewing direction of a three-dimensional computer model comprising a representation and associated texture data for at least one object, the texture data being derived from image data recorded by at least one camera, the method comprising:

generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, in which the texture data is rendered onto each representation; and

[generating quality information for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] generating reliability information indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

178. (Amended) An image processing method in which object data defining a three-dimensional computer model of at least one object in a scene is rendered in accordance with a user-selected viewing direction using image data recorded by a camera having a viewing direction to render each object, and an indicator of a quality of the generated image data is produced for

output to the user in dependence upon the angle between the user-selected viewing direction and the viewing direction of the camera.

179. (Amended) Apparatus for processing image data defining a sequence of images of at least one object moving in a scene to produce signals defining a representation of each object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the apparatus comprising:

means for processing the image data to identify image data relating to respective objects in the scene;

means for defining a representation of each object in the three-dimensional computer model in dependence upon the identified image data;

means for generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction in which texture data based on the identified image data is rendered onto the object representations; and

means for generating [quality information for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] reliability information indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

181. (Amended) Apparatus according to claim [180] 179, operable to perform processing such that the information indicating the reliability is generated in dependence upon a linear relationship between [quality] reliability and the angular difference between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

182. (Amended) Apparatus according to claim [180] 179, further comprising means for generating information indicating how to change the viewing direction to improve the generated reliability.

185. (Amended) Apparatus according to claim 179, operable to perform processing such that the [quality] reliability information is generated as pixel data within the generated image data.

186. (Amended) Apparatus according to claim 179, further comprising means for displaying an image using the generated image data and displaying the [quality] reliability information.

187. (Amended) Apparatus for rendering an image in accordance with a user-selected viewing direction of a three-dimensional computer model comprising a representation and associated texture data for at least one object, the texture data being derived from image data recorded by at least one camera, the apparatus comprising:

means for generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, in which the texture data is rendered onto each representation; and

means for generating [quality information for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] reliability information indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

188. (Amended) An image processing apparatus operable to render object data defining a three-dimensional computer model of at least one object in a scene in accordance with a user-selected viewing direction using image data recorded by a camera having a viewing direction to render each object, and operable to produce an indicator of a quality of the generated image data for output to the user in dependence upon the angle between the user-selected viewing direction and the viewing direction of the camera.

189. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [166 to 178] 166, 177 and 178.

190. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [166 to 178] 166, 177 and 178.

191. (Amended) A method of processing image data defining a plurality of sequences of images, each from a respective camera, of [at least one] an object moving in a scene to produce signals defining a representation of [each] the object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the method comprising:

receiving data defining a user-selected viewing direction;

calculating the respective angle between the user-selected viewing direction and the respective viewing direction of each camera;

identifying the cameras having a viewing direction within a predetermined angle of the user-selected viewing direction as identified cameras;

comparing at least one camera characteristic affecting image data quality for each identified camera to determine differences therebetween;

selecting one of the identified cameras as a selected camera in dependence upon the determined differences;

processing input image data from [at least one] the selected camera to define [at least one] a representation of [each] the object in the three-dimensional computer model; and

generating image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, in which texture data based on

input image data from the selected camera is rendered onto [a] the representation of [each] the object[;].

[wherein: the representation of each object rendered is determined in dependence upon the user-selected viewing direction, the respective viewing directions of cameras, and at least one camera characteristic affecting image data quality.]

192. (Amended) A method according to claim 191 or claim 249, wherein, when comparing at least one camera characteristic affecting image data quality, at least one of the following are compared: [the representation of each object rendered is determined in dependence upon the user-selected viewing direction, the viewing direction of respective cameras, and at least one of:] the methods of transferring the image data from respective cameras; the resolution of respective cameras; the shutter speed of respective cameras; the stability of the image data from respective cameras; and whether the image data from respective cameras is colour or black and white.

195. (Amended) A method according to claim 191 or claim 249, wherein a plurality of camera characteristics affecting image quality are compared [considered to determine the representation of each object for rendering].

196. (Amended) A method according to claim 195, wherein the camera characteristics affecting quality are considered in a predetermined order and values for each respective camera characteristic are compared, with the [determination] selection of [the

representations to be rendered] a camera being made once the tests identify a characteristic which differs by more than a predetermined amount for given cameras.

201. (Amended) An image processing method in which image data from each of a respective sequence of images, each from a different camera, is processed to define a representation of at least one object in a three-dimensional computer model, and wherein a representation of each object is selected for rendering in dependence upon a user-selected viewing direction, the viewing direction of each camera and [at least one] a plurality of camera parameters related to image data quality, wherein the plurality of camera parameters are tested in a predetermined order, with the selection of a representation for rendering being made once the tests identify a camera parameter which is sufficiently different for the cameras.

202. (Amended) An image processing method in which a user-selected viewing direction in accordance with which an image of at least one object in a three-dimensional computer model is to be rendered is used to select, from among image data defining a plurality of images of the object each recorded by a respective camera, image data to be used to define the object in the three-dimensional computer model, the selection being carried out in dependence upon the user-selected viewing direction, together with the viewing direction of each camera and [at least one] a plurality of camera parameters related to image data quality, wherein the plurality of camera parameters are tested in a predetermined order, with the selection of image data being made once the tests identify a camera parameter which is sufficiently different for the cameras.

203. (Amended) An image processing apparatus for processing image data defining a plurality of sequences of images, each from a respective camera, of [at least one] an object moving in a scene to produce signals defining a representation of [each] the object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the apparatus comprising:

means for receiving data defining a user-selected viewing direction;

means for calculating the respective angle between the user-selected viewing direction and the respective viewing direction of each camera;

means for identifying the cameras having a viewing direction within a predetermined angle of the user-selected viewing direction as identified cameras;

means for comparing at least one camera characteristic affecting image data quality for each identified camera to determine differences therebetween;

means for selecting one of the identified cameras as a selected camera in dependence upon the determined differences;

means for processing input image data from [at least one] camera to define a [at least one] the selected representation of each] the object in the three-dimensional computer model; and

means for generating image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, in which texture data based on input image data from the selected camera is rendered onto [a] the representation of [each] the object.[;]

[the apparatus being operable to perform processing such that:

the representation of each object rendered is determined in dependence upon the user-selected viewing direction, the respective viewing directions of cameras, and at least one camera characteristic affecting image data quality].

204. (Amended) Apparatus according to claim 203 or claim 250, wherein the means for comparing at least one camera characteristic affecting image data quality is operable to compare [perform processing such that the representation of each object rendered is determined in dependence upon the user-selected viewing direction, the viewing direction of respective cameras, and] at least one of: the methods of transferring the image data from respective cameras; the resolution of respective cameras; the shutter speed of respective cameras; the stability of the image data from respective cameras; and whether the image data from respective cameras is colour or black and white.

207. (Amended) Apparatus according to claim 203 or claim 250, operable to perform processing [such that] to compare a plurality of respective camera characteristics affecting image quality [are considered to determine the representation of each object for rendering].

208. (Amended) Apparatus according to claim 207, operable to perform processing such that the camera characteristics affecting quality are [considered] compared in a predetermined order [and values for each respective camera characteristic are compared], with

the [determination] selection of [the representations to be rendered] a camera being made once the tests identify a characteristic which differs by more than a predetermined amount for given cameras.

210. (Amended) An image processing apparatus operable to process image data from each of a respective sequence of images, each from a different camera, to define a representation of at least one object in a three-dimensional computer model, and to select a representation of each object for rendering in dependence upon a user-selected viewing direction, the viewing direction of each camera and [at least one] a plurality of camera parameters related to image data quality, the apparatus being operable to test the plurality of camera parameters in a predetermined order and to select a representation for rendering when the tests identify a camera parameter which is sufficiently different for the cameras.

211. (Amended) An image processing apparatus operable to use a user-selected viewing direction in accordance with which an image of at least one object in a three-dimensional computer model is to be rendered to select, from among image data defining a plurality of images of the object each recorded by a respective camera, image data to be used to define the object in the three-dimensional computer model, the selection being carried out in dependence upon the user-selected viewing direction, together with the viewing direction of each camera and [at least one] a plurality of camera parameters related to image data quality, wherein the apparatus is operable to test the plurality of camera parameters in a predetermined order and

to select image data when the tests identify a camera parameter which is sufficiently different for the cameras.

212. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [191 to 202] 191, 201, 202 and 249.

213. (Amended) A signal conveying instructions for causing a programmable processing apparatus become operable to perform a method according to any of claims [191 to 202] 191, 201, 202 and 249.

235. (Amended) A storage medium storing instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [214 to 225] 214, 223, 224 and 225.

236. (Amended) A signal conveying instructions for causing a programmable processing apparatus to become operable to perform a method according to any of claims [214 to 225] 214, 223, 224 and 225.

239. (Amended) Apparatus for generating a model of an object in a three-dimensional computer model, comprising:

an image data transformer for applying a transformation to image data from a first camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to a surface to give first transformed image data, and for applying a transformation to image data from a second camera relating to the object and its shadow which maps the image data [for one of the object and its shadow] to the surface to give second transformed image data; [and]

a transformed image data comparer for comparing the first transformed image data and the second transformed image data to distinguish transformed image data relating to the object from transformed image data relating to its shadow; and

an object modeller for modelling the object in dependence upon [part of] the transformed image data relating to the object.

244. (Amended) Apparatus for processing image data defining a sequence of images of at least one object moving in a scene to produce signals defining a representation of each object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the apparatus comprising:

an image data identifier for processing the image data to identify image data relating to respective objects in the scene;

an object modeller for defining a representation of each object in the three-dimensional computer model in dependence upon the identified image data;

a renderer for generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction in which texture data based on the identified image data is rendered onto the object representations; and

a [quality] reliability information generator for generating [quality] reliability information [for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

245. (Amended) Apparatus for rendering an image in accordance with a user-selected viewing direction of a three-dimensional computer model comprising a representation and associated texture data for at least one object, the texture data being derived from image data recorded by at least one camera, the apparatus comprising:

a renderer for generating image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, in which the texture data is rendered onto each representation; and

a [quality data] reliability information generator for generating [quality] reliability information [for the image data indicating a quality of the image data determined in dependence upon the user-selected viewing direction] indicating the reliability of the image data in dependence upon the angle between the user-selected viewing direction and the viewing direction from which the input image data was recorded.

246. (Amended) An image processing apparatus for processing image data defining a plurality of sequences of images, each from a respective camera, of [at least one] an object moving in a scene to produce signals defining a representation of [each] the object in a three-dimensional computer model, and to generate image data by rendering an image of the three-dimensional computer model in accordance with a user-selected viewing direction, the apparatus comprising:

a data receiver for receiving data defining a user-selected viewing direction;

an angle calculator operable to calculate the respective angle between the user-selected viewing direction and the respective viewing direction of each camera;

a camera identifier operable to identify the cameras having a viewing direction with a predetermined angle of the user-selected viewing direction as identified cameras;

a camera characteristic comparer operable to compare at least one camera characteristic affecting image data quality for each identified camera to determine differences therebetween;

a camera selector operable to select one of the identified cameras as a selected camera in dependence upon the determined differences;

an object representation generator for processing input image data from [at least one] camera to define a [at least one] the selected representation of [each] the object in the three-dimensional computer model; and

a renderer for generating image data by rendering an image of the three-dimensional computer model in accordance with the user-selected viewing direction, in which

texture data based on input image data from the selected camera is rendered onto [a] the representation of each object[;].

[the apparatus being operable to perform processing such that:

the representation of each object rendered is determined in dependence upon the user-selected viewing direction, the respective viewing directions of cameras, and at least one camera characteristic affecting image data quality.]